

## **Project Code and Title**

### **B.02.01.02.07 Upper Extremity Injury/Air Bag**

## **Project Objective**

To examine the trauma to human arms which occurs as a result of being in close proximity to the deploying air bag.

## **Background**

A NASS study of frontal collisions showed that there were 4 times as many arm injuries to belted drivers who had an air bag deploy than for the drivers who were simply belted. By far, the distal forearm/hand was the most commonly injured region.

## **Problem Definition**

There are two modes of arm injury related to the deploying air bag: 1) The arm is directly contacted by the air bag module and/or cover flaps, and 2) The arm is flung away and contacts an interior car surface. The severity depends on the aggressiveness of deployment of the air bag.

## **Research Approach**

Three types of test setups will be utilized. The first uses an entire cadaver that has been previously tested in a static out-of-position test. The second type of testing involves fixing a human cadaver arm on a test fixture with a simulated shoulder joint. The third type of testing will be dynamic three point bending tests of excised human arms.

## **Potential Impact/Application**

The study could help determine the tolerance level of the human arm and establish arm injury criteria.

## **Key Milestones**

- ▶ To establish arm injury criteria by September 1997.

RESOURCE REQUIREMENTS	FY 93	FY 94	FY 95	FY 96	FY97
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Contract Money (\$K)			463*	540*	
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\* Only a small portion of this fund will be devoted to this project

### Project Manager(s)

Nopporn Khaewpong

### Completion Date

April 1998

### Project Tasks

<u>Task</u>	<u>Title and Description</u>
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Task 1: Develop Test Apparatus and Experimental Protocol

Task 2: Run Preliminary Tests

Task 3: Run Cadaver Experiments

Task	Start Date	Projected Completion Date	Status/Responsibility
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1	5/96	open	In progress
2	7/96	open	In progress
3	10/96	4/97	In progress

### Supporting Contracts

Task	Contract Number	COTR (phone)	Contracting Officer (phone)	Total Contract Cost (\$K)
	DTNH22-93-Y-07028	(202)366-4703	Lamont O. Norwood (202)366-8573	2700*

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